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Environmental Information Resources for State and Local Officials Surface Mining

Rivkin Associates, Inc, Washington, D C

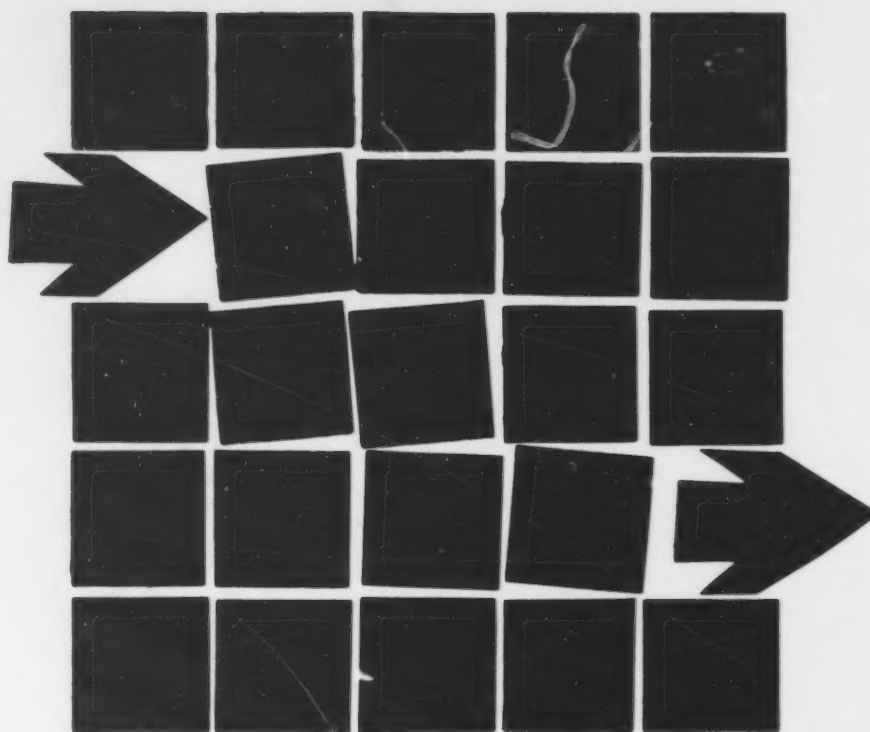
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Feb 77

Surface Mining

ENVIRONMENTAL INFORMATION



resources for state & local elected officials

U.S. Environmental Protection Agency
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ENVIRONMENTAL INFORMATION RESOURCES
FOR STATE AND LOCAL ELECTED OFFICIALS .

Surface Mining Guide

U.S. ENVIRONMENTAL PROTECTION AGENCY
Regional and Intergovernmental Operations,
and Library Systems Branch

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ENVIRONMENTAL INFORMATION RESOURCES
FOR STATE AND LOCAL ELECTED OFFICIALS

surface mining

Introduction

This guide to resources for information on surface mining is offered by the Environmental Protection Agency as an aid to state and local legislators who want to know what information is available on this subject and how it may be obtained.

The pages that follow contain selected examples of information sources. All the citations and the sample materials in the accompanying packet have been obtained from sources listed in the General Reference Guide to Environmental Information Resources for State and Local Elected Officials which has been prepared by EPA as well. Emphasis is on items from governmental bodies with program responsibilities related to surface mining, and on sources which are readily available in all states -- through Federal Depository Libraries (usually the State Land Grant Colleges), EPA Libraries, state and local environmental collections or for sale by the U.S. Government Printing Office or the National Technical Information Service. Addresses for all these sources are listed in the General Reference Guide.

Outline of Subjects Covered

Aspects of surface coal mining covered in this guide are:

1. Overview (legal and regulatory involvement of government at all levels, technology, and relationship of surface mining issues within the overall context of environmental policy).
2. Organizations, associations and individuals with special knowledge of surface mining issues.

Cont'd

3. Surface mining impacts (acid drainage and silting of surface water; acid, silting, level changes and secondary contamination effects on groundwater; erosion, landslide, fire, and other health and safety hazards associated with land impacts, aesthetics and damage to prospects for utilization of mined-out lands; air pollution, noise and vibration; costs, etc.).

4. Pollution control, reclamation and utilization of mined-out land (techniques, evaluation, benefits, procedures).

5. Economic aspects of surface mining, pollution-mitigation, land reclamation.

6. The surface coal-mining industry (structure, markets, costs, factors influencing prospects for the future).

7. Public policy and approaches to legislative and regulatory control (Federal, state, local; and problems of regulation).

8. Current developments.

9. Future issues, directions.

What the Guide Includes

Under each subject heading are several annotated references. Most of these have been identified through request from Federal government agencies with program responsibility in the field or search of major secondary sources for literature.¹ These citations are examples of up-to-date, comprehensive

1. Specifically these included the Catalog of U.S. Government Publications, Government Reports Announcement and Index, Environment Index and the Library of Congress Reference Service' SCORPIO computer system.

and readable items in each category. The list is illustrative rather than definitive or exhaustive. Some of the materials are included in the packet which accompanies this guide, to give the potential user an opportunity to examine what is available.

Items listed without notation are included because their titles appear relevant. No judgment of their relative value is made or implied.

How the Guide Can Help the Legislator

Inquiries which this guide can serve best are ones which seek:

- general introduction to the subject or some facet of it
- technology assessment or state-of-the-art surveys
- ideas about how other jurisdictions are approaching similar problems, and evaluation of their success
- ideas about alternative approaches to particular problems
- information on current developments or future prospects likely to affect the legislator's jurisdiction, constituents or legislative workload
- evidence to support or invalidate claims made by a group known to have specific vested interests in an issue
- guidance in formulating criteria for judging proposals placed before the legislator
- comparative information or other background helpful in performing legislating oversight duties
- sources of factual material for articles and speeches
- background for preparing to conduct public hearings
- understanding of the basis for Federal legislation, regulations, standard-setting, etc.
- guidance for staff or aides in preparing briefing papers for the legislator
- locating pertinent items in journals the legislator has received but has not read or remembered
- locating agencies and organizations who can offer advice or assistance in dealing with specific problems

-
2. Items noted "Depository" are available in Federal Depository Library collections. NTIS and GPO designations indicate items may be purchased from these sources. Order numbers are shown in parentheses in most cases). "Environment Abstracts" indicates, for items cited in Environmental Index, where the abstract can be found.

Use of the Guide

Most users of this reference document will probably have specific questions in mind. Many of the answers will probably relate to data or analysis or alternative solutions particularly relevant for their respective jurisdictions. For needs of this sort the guide can point to possible sources of technical assistance. The citations provide a means to identify researchers and agencies that have expertise in particular aspects of the surface mining field.

The reader may initially wish to scan the pages to understand the range and scope of materials available. The guide can then be filed with other reference materials for use when the need for it occurs.

When a specific question does arise, the official may turn to the section or sections of the guide with the most appropriate subject headings. Depending on his information needs, he may seek names and addresses of organizations or agencies on the basis of their functional descriptions or evidence of work they have published. He may select a few items he wishes to borrow from the library to read or have an aide abstract. He may prefer to order a copy of a report or to locate its author and make telephone inquiry about the subject.

Since the surface mining guide is illustrative only, it can be expanded by more systematic tapping of the sources listed in the accompanying general reference guide. It can also be updated or elaborated in respect to local sources. The looseleaf form of presentation permits this sort of adaptation. Newly acquired pamphlets or clippings bearing on this subject can be added to the accompanying packet, to become part of the file as well.

Limitations of the Guide

Sometimes, when answers are available directly from local sources known to the elected officials, this guide will be neither helpful nor needed. Other times, the problem will require answers so complex or judgmental as to require the concentrated attention of staff or consultants. In these

instances the guide can be useful only to the extent that it helps the legislator determine that his question is of this nature.

The elected official may want to know answers to highly specific, localized questions for which this guide may not be useful. For example: What proportion of the pollutants in the watercourse from which his community's water supply is drawn, comes from surface mining? How does the level compare with the level five years ago when surface mining control legislation was enacted? And how much would the problem be improved by spending x dollars on an inspection and enforcement program? Here, he can talk with agencies who maintain information on the Federal water quality monitoring program. He can learn the location of the water quality sampling stations, the years in which each tested for particular pollutants and the frequency of sampling. He can learn which of the data are current, and detailed assessment of conditions that affect their validity for extrapolation. Perhaps he can get a computer printout itemizing in detail the chemical elements whose presence in the water is detected. A helpful official may explain the sort of computer simulation model required to obtain answers to his first question, the procedures for successive computer runs, the probable cost of getting the answer, and when it might be available. He would not be likely to have the answer ready, however.

Perhaps the legislator in this case would do better to ask a local university professor, agency staff member, professional science adviser or consultant to act as interpreter for him, to sort out the relevant information he needs for his decision. It may be that base information for the answer is not available. Then the official must decide what it is worth to collect it or whether he can proceed without a full answer. These are not questions which this guide addresses.

The guide does not seek to analyze surface mining problems from the perspective of one governmental program or agency or another, nor does it promote any specific approach to solutions. If legislators use the guide to find their way to information they seek, and therefore learn more than they would without it, their work will benefit, and the purpose of the guide will have been served.

ENVIRONMENTAL INFORMATION

RESOURCES FOR

STATE AND LOCAL ELECTED OFFICIALS

surface mining

OVERVIEW

OVERVIEW

Reitze, Arnold W. Jr., "Surface Mining," Chapter Twelve in Environmental Planning: Law of Land and Resources.

Legal and
Regulatory

Written for the lay reader; describes the process of strip or surface mining, its environmental effects, and nature of the remedies; some measures of the present and future extent of both activity and impacts; legal basis for governmental control; history of state and Federal roles in respect to surface mining; outline of state reclamation laws and discussion of their effectiveness; discusses proposed Federal legislation through the 93rd Congress; analyses Ohio's strip mining law (which is included); includes also commentary on Western (Four Corners) coal-related issues and North Central (N. Dakota, Montana, S. Dakota and Wyoming) prospects; and describes the broad form deed, which gives legal basis for mining operators' claim of right to destroy the surface, and its history in the courts of various states. Author is currently making a comparative study of mining regulations in 21 countries.

Grim, Elmore C., and Hill, Ronald D., Environmental Protection in Surface Mining of Coal. National Environmental Research Center, Office of Research and Development, U.S. Environmental Protection Agency. EPA-670/2-74-093. October, 1974. Available GPO, Depository. NTIS (PB-238 538; \$10.50).

Technological

Clear language, occasionally technical (but glossary provided) describes surface mining methods, sources of impacts (air, water, land), mitigating techniques, reclamation techniques and costs, emphasizing advantages of advance planning of mining operations. Provides many illustrations, photographs, statistics, maps and bibliographic references.

Encyclopedia Britannica, Macropedia.

Volume 4, p. 777:

Articles on strip mining techniques, equipment, environmental impacts and general reclamation techniques.

Volume 5, p. 51:

Article on approaches to mitigating and controlling environmental damage from strip mining.

surface mining

OVERVIEW

General
Environmental
Policy Context

Barney, Gerald O., Ed., The Unfinished Agenda: The Citizen's Policy Guide to Environmental Issues, A Task Force Report Sponsored by the Rockefeller Brothers Fund, (New York) Thomas Y. Crowell, 1977.

Review of national environmental issues includes discussion of strip mining and methods of coal conversion (to energy).

The Problems of Communication Between Technicians and Decision-Makers. Ford Foundation Experiments in Regional Environmental Management, 1974. p. 6 (Environment Abstracts 05-75-00463)

Political
Aspect

"Strip mining lobby groups focus on House Interior Committee," National Journal Reports, v.6, Jan. 26, 1974, pp. 137-142.

Bibliographies

Strip mining: a bibliography with abstracts, NTIS* (PS-75/054/4; Paper copy \$25.00) 105 p.

Strip mining: a bibliography with abstracts, NTIS (PC-75/751/8; Paper copy \$25.00) 579 p.

Note:

- GPO - Superintendent of Documents, Government Printing Office; addresses given in General Reference Guide to Environmental Information Resources
- NTIS - National Technical Information Service; address given same place; number which follows NTIS in citation is the order number, when price is given it refers to paper copy. Microfiche prices are usually substantially lower, around \$2.25. Catalogs available in most libraries show current prices.

Regional Depository Libraries

Regional depository libraries are required to receive and retain one copy of all federal government documents made available to them either in printed or microfacsimile form. Regular depository libraries, which are not listed here, offer only certain classes of documents chosen by the library. For a list of all depository libraries, write to the U.S. Government Printing Office, Public Documents Dept., Washington, D.C. 20402.

State	Address/Telephone
Alabama	University of Alabama, Amelia Cayle Gorgas Library, Box 5, University 35486; (205) 348-6044.
Arizona	Dept. of Administration, Library, Archives and Public Records Division, Capitol Bldg., Phoenix 85007; (602) 271-5031.
California	University of Arizona Library, Tucson 85721; (602) 894-2101.
Colorado	California State Library, Library-Courts Bldg., Box 2037, Sacramento 95809; (916) 445-4374.
	University of Colorado Libraries, Norlin Library, Boulder 80302; (303) 443-2211.
	Denver Public Library, 1357 Broadway, Denver 80203; (303) 573-5152.
Connecticut	Connecticut State Library, 231 Capitol Ave., Hartford 06115; (203) 566-4777.
Florida	University of Florida Libraries, Gainesville 32611; (904) 392-0341.
Idaho	University of Idaho Library, Moscow 83843; (208) 885-6534.
Illinois	Illinois State Library, Centennial Bldg., Springfield 62756; (217) 535-2994.
Indiana	Indiana State Library, 140 N. Senate Ave., Indianapolis 46204; (317) 633-5440.
Iowa	University of Iowa Libraries, Iowa City 52242; (319) 353-4450.
Kentucky	University of Kentucky, Margaret I. King Library, Lexington 40506; (606) 257-3001.
Louisiana	Louisiana State University Library, Baton Rouge 70803; (504) 388-2217.
	Louisiana Tech University, Prescott Memorial Library, Ruston 71270; (318) 257-3555.
Maine	University of Maine, Raymond H. Fogler Library, Orono 04473; (207) 581-7328.
Maryland	University of Maryland, McKeldin Library, College Park 20742; (301) 454-3011.

Massachusetts	Boston Public Library, Copley Square, 666 Boylston St., Box 266, Boston 02117; (617) 536-5400.
Michigan	Detroit Public Library, 5201 Woodward Ave., Detroit 48202; (313) 321-1000.
	Michigan State Library, 735 E. Michigan Ave., Lansing 48913; (517) 373-1500.
Minnesota	University of Minnesota, O. Meredith Wilson Library, Minneapolis 55455; (612) 373-3097.
Montana	University of Montana Library, Missoula 59801; (406) 243-6800.
Nebraska	Nebraska Publications Clearinghouse, Nebraska Library Commission, 1420 P St., Lincoln 68508; (402) 471-2045.
Nevada	University of Nevada, Noble H. Geitchell Library, Reno 89507; (702) 784-6533.
New Jersey	Newark Public Library, 5 Washington St., Newark 07101; (201) 733-7800.
New Mexico	University of New Mexico, Zimmerman Library, Albuquerque 87106; (505) 277-5961.
	New Mexico State Library, 300 Don Gaspar St., Box 1629, Santa Fe 87501; (505) 827-2103.
New York	New York State Library, Washington Ave., Albany 12224; (518) 474-5930.
North Carolina	University of North Carolina, Louis Round Wilson Library, Drawer 870, Chapel Hill 27514; (919) 933-1301.
North Dakota	North Dakota State University (in cooperation with University of North Dakota, Chester Fritz Library at Grand Forks), Fargo 58102; (701) 237-8876.
Ohio	State Library of Ohio, 65 South Front St., Columbus 43215; (614) 469-2693.
Oklahoma	Oklahoma Dept. of Libraries, 200 N.E. 18, Oklahoma City 73105; (405) 521-2502.
Oregon	Portland State University Library, 934 SW Harrison St., (Box 1151), Portland 97207; (503) 229-4521.
Pennsylvania	State Library of Pennsylvania, Walnut St. and Commonwealth Ave., (Box 1601), Harrisburg 17126; (717) 787-2646.
Texas	Texas State Library, 1201 Brazos St., (Box 12927), Capitol Sta., Austin 78711; (512) 475-2166.
	Texas Tech University Library, Box 4079, Lubbock 79409; (806) 742-2261.
Utah	Utah State University, Merrill Library and Learning Resources Program, College Hill, Logan 84322; (801) 752-4100.
Virginia	University of Virginia, Alderman Library, Charlottesville 22901; (804) 924-3026.
Washington	Washington State Library, Olympia 98504; (206) 753-5592.
West Virginia	West Virginia University Library, Morgantown 26506; (304) 293-0111.
Wisconsin	State Historical Society Library (in cooperation with University of Wisconsin Memorial Library), 816 State St., Madison 53706; (608) 262-3421.
	Milwaukee Public Library, 814 W. Wisconsin Ave., Milwaukee 53233; (414) 278-3000.
Wyoming	Wyoming State Library, Supreme Court and Library Bldg., Cheyenne 82002; (307) 777-7281.

ENVIRONMENTAL INFORMATION

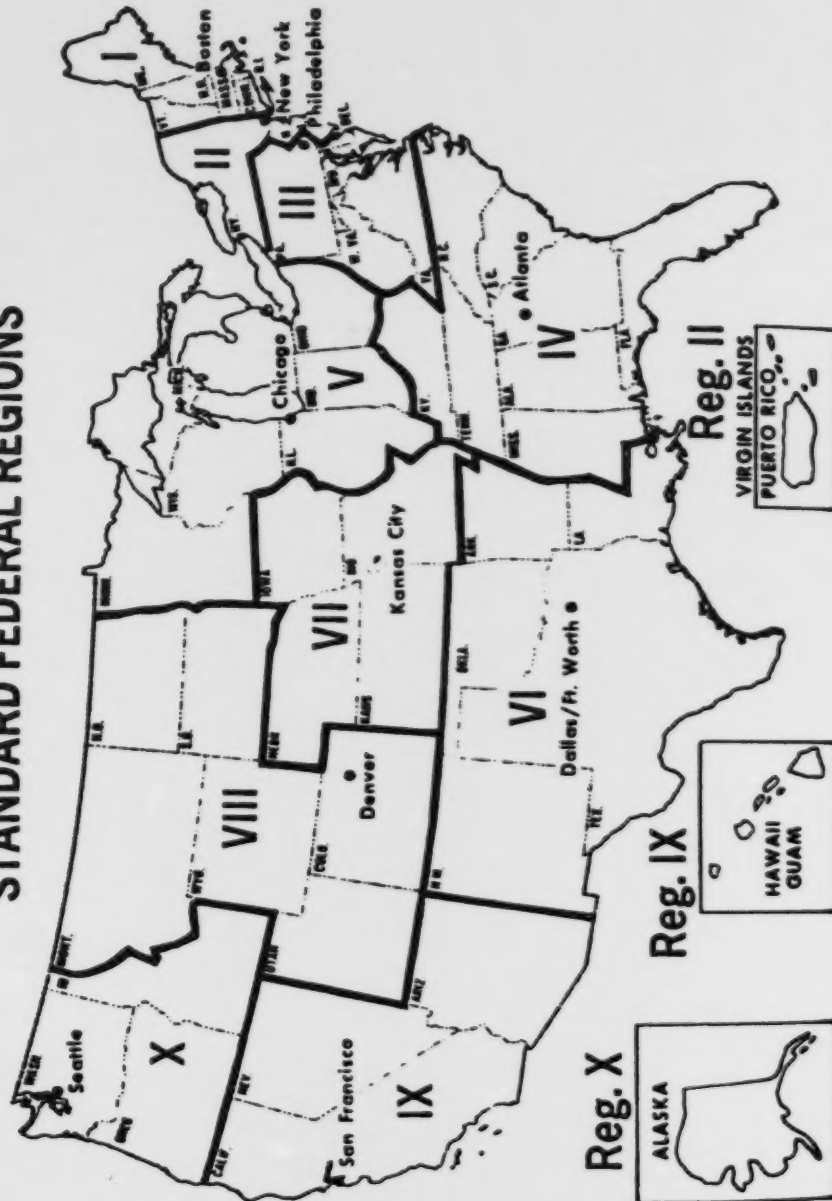
RESOURCES FOR

STATE AND LOCAL ELECTED OFFICIALS

surface mining

ORGANIZATIONS, ASSOCIATIONS AND
INDIVIDUALS WITH SPECIAL KNOWLEDGE

STANDARD FEDERAL REGIONS



Organizations,
Associations,
and Individuals

Organizations, Associations, and Individuals with Special
Knowledge of Surface Mining and Related Issues.*

A. Governmental -- Federal and Regional

Agriculture Department

Agricultural Stabilization and Conservation Service
Environmental Quality and Land Use Division
14th St. and Independence Ave., S.W.
Washington, D.C. 20250
202/447-4491

The Division is concerned with the application of conservation practices, including related pollution abatement and wildlife measures and Federal cost-sharing assistance, agricultural conservation, the soil bank program, the waterbank program, land reclamation, and long-term acreage diversion. Leaflets are published, and information is provided as time permits. Extensive services are provided on a fee basis.

Forest Service

U.S. Department of Agriculture
14th St. and Independence Ave., S.W.
Washington, D.C. 20250
202/447-6661

The Office of the Chief will direct inquiries to the appropriate office within the Forest Service for reply.

Soil Conservation Service

12th St. and Independence Ave., S.W.
Washington, D.C. 20250
202/447-4531

*List compiled from Congressional Quarterly Washington Directory, Library of Congress Referral Center, SL 74-6, and Federal Government, U.S. Geological Survey publication and other sources. State and local non-governmental groups are suggested but not fully listed.

(Soil Conservation Service, Cont'd.)

Administers a national soil and water conservation program, and the national cooperative soil survey which serves as a basis for classifying soil for agriculture and non-agriculture purposes. Provides technical help through local conservation districts to land owners and operators in carrying out locally-adapted soil and water conservation programs. Inventories and monitors soil, water and related resource data and resource-use trends for conservation, development and use of the land.

Plant Sciences Division
202/447-2587

The Division is concerned with, and performs research on, the botanical aspects of reclamation of mined lands, including plant selection and breeding.

Information will be provided as time permits.

Environmental Protection Agency

Office of Research and Development
Division of Data and Information Research
401 M St., S.W.
Washington, D.C. 20460
202/755-0638

Center disseminates scientific and technical information related to environmental protection, research-generated knowledge and data, and information for organizing, administering and performing research and development. They maintain a Project Information Retrieval System and identify EPA documents on environmental research and development.

Office of Water and Hazardous Materials
Criteria and Standards Division
401 M St., S.W.
Washington, D.C. 20460
202/755-0100

Develops water quality, toxic effluent and hazardous discharge standards; develops guidance for lake restoration, vessel waste control, and control of in-place toxic pollutants.

Governmental -
Federal

National Environmental Research Center
4676 Columbia Parkway
Cincinnati, Ohio 45268
513/684-8481
Technical Information Office: 513/684-8258

Energy Research and Development Administration

Assistant Administrator for Fossil Energy
20 Massachusetts Ave., N.W.
Washington, D.C. 20545
202/376-4652
Information: 202/376-4064

Responsible for research and development in coal and other resources; coal interests include coal liquefaction, coal gassification above and below ground, combustion systems and mining technology.

Office of Programming, Planning and Analysis
20 Massachusetts Ave., N.W.
Washington, D.C. 20545
202/376-4774

Responsible for a national mathematical model that delineates the total system of energy derived from coal from the coal mine to the market, including conversion, transportation and transmission.

Federal Energy Administration
Office of Energy Resource Development,
Office of Coal
12th St. and Pennsylvania Ave., N.W.
Washington, D.C. 20461
202/961-6141
Information: 202/964-6003

Encourages expansion and use of coal through application of coal technology. Works with utilities and states to encourage coal conversion; studies possibility of returning to use of coal in home heating market; encourages states to tap coal beds to get pipeline grade gas for a natural gas supplement; supports the application of coal slurry pipelines to the transport of coal; participates in program to double coal production by 1985.

Housing and Urban Development Department

Office of Policy Development and Research
Division of Energy, Building Technology and Standards
451-7th St., S.W.
Washington, D.C. 20410
202/755-6443

Seeks efficient ways of using energy by recovering wasted resources; includes coal recovery technologies.

Interior Department

Bureau of Land Management
18th and C Streets, N.W.
Washington, D.C. 20240
202/343-3801
Information: 202/343-5717

Manages the national resource lands and their resources, the mineral resources connected with acquired lands and the submerged lands of the Outer Continental Shelf. Resources managed and leased include wildlife habitats, timber, minerals, open space, forage and recreational resources. Surveys federal lands and maintains public land records.

Office of Upland Minerals
202/343-8638

Division answers inquiries and suggests appropriate sources for information on the leasing, mining and environmental protection of federal lands.

Bureau of Mines
Office of Mineral Information
18th and C Sts., N.W.
Washington, D.C. 20240
202/634-1004

The Division answers inquiries and disseminates information to the news media through press releases, copies of speeches, and special publications. Questions which cannot be answered by the Division will be referred to the appropriate office within the Bureau for reply. Questions relating to the environmental aspects of mining and the reclamation of mined lands are the concern of the Bureau's Division of the Environment.

(Interior Dept., Cont'd.)

(Bureau of Mines, Cont'd.)

Publications Office
4800 Forbes Avenue
Pittsburgh, Pa. 15213
412/621-4500

Office distributes single copies of the Bureau's free publications and circulates on a free loan basis films produced by the Bureau in cooperation with industry sponsors. Catalog of films is available.

Office of Minerals and Materials Research and Development,
Metallurgy
2401 E St., N.W.
Washington, D.C. 20241
202/634-1138

Conducts metallurgical research, including developing processes for treating, smelting and refining low grade ores; recycling of municipal wastes for recovery of metals and minerals; developing methods for reducing air, water and land pollution that results from metals industry waste; and developing engineering materials.

Office of Minerals and Materials Research and Development
Office of Fuels, Division of Coal
2401 E St., N.W., Washington, D.C. 20241
202/634-1026

Interprets and analyzes data pertaining to production, utilization and distribution of coal domestically and internationally. Publishes statistics weekly, monthly and quarterly on coal; publishes monthly analysis of world coal situation; studies export and import of coal and long-range forecast of coal markets.

Assistant Director for Mining, Division of Environment
202/634-1251

Conducts studies and programs on mine land reclamation and restoration; advises bureau director on strip mining policy.

Mining Enforcement and Safety Administration, Coal Mine Health
Division, Ballston Tower #3
4015 Wilson Blvd.
Arlington, Va. 22203
703/235-1358

(Interior Dept, Cont'd.)

(Bureau of Mines, Cont'd.)

(Mining Enforcement and Safety Administration, Cont'd.)

Administers health portions of the Coal Mine Health and Safety Act of 1969; advises officials in the field on enforcement of regulations.

Mining Research, Health and Safety Division

2401 E St., N.W.

Washington, D.C. 20241

202/634-1236

Conducts research to improve the health and safety of miners in accordance with the Coal Mine Health and Safety Act of 1969 and Federal Metal and Nonmetallic Act of 1966.

Mining Research, Resources Division

2401 E. St., N.W., Wash., D.C. 20241

202/634-1249

Conducts research into more effective and efficient ways to extract coal from the ground.

Denver Mining Research Center

Denver Federal Center, Bldg. 20

Denver, Colorado 80225

303/234-3754

Basic and applied research is performed by the Center in ground control, with emphasis on rock mass behavior, mine structure analysis, mine opening design, and premining delineation of structure. Major research areas include the development of seismic and infrared techniques to locate and delineate coal and metal mine roof weaknesses, detection of physical changes in roof rock characteristics in advance of mining, caving mechanisms and provisions for the control of surface subsidence, classical rock mechanics and the applications thereof, and the determination and relationship of vertical and horizontal stresses related to mine design. In addition, research is being conducted on the reclamation of mined lands. Inquiries are answered as time permits.

(Interior Dept. Cont'd.)

(Bureau of Mines, Cont'd.)

Grand Forks Energy Research Laboratory
P.O. Box 8213, University Station
Grand Forks, N. Dakota 58201
701/775-4207

The Laboratory performs research on coal, the combustion and carbonization of Western coals, the use of humic acids derived from lignite as a growth promoter for use in agriculture, gasification, and the recovery of mined lands. Inquiries are answered as time permits, and onsite use of the Laboratory's collection is permitted.

Pittsburgh Mining Research Center
4800 Forbes Avenue
Pittsburgh, Pa. 15213
412/892-2400

Performs research on materials handling in mining environmental controls such as water and drainage. Answers inquiries and makes referrals.

Bureau of Outdoor Recreation
18th and C Sts., N.W.
Washington, D.C. 20240

Division of Cooperative Services
202/343-2193

The Division does research on the preparation and cultivation of mined lands for outdoor recreational purposes. They answer inquiries and provide technical assistance and advice as time permits.

Bureau of Reclamation
18th and C Sts., N.W.
Washington, D.C. 20240

Water and Land Division
202/343-5104

Staff answers inquiries relating to the Bureau's jurisdiction and makes referrals.

(Interior Dept., Cont'd.)

Fish and Wildlife Service
18th and C Sts., N.W.
Washington, D.C. 20240
202/343-4717
Information: 202/343-5634

Service is responsible for inland sports fisheries and fishery research activities, and for improving and maintaining fish resources through proper management of fish habitats; provides conservation education and public information programs on fish.

Associate Director for Federal Assistance
202/343-4646

Administers Endangered Species Act of 1973. Responsible for maintaining endangered species list and determining habitats critical for survival of certain species. Provides technical assistance to all levels of government for scientific and wildlife management. Administers grant-in-aid money to states for fish and wildlife purposes. Administers and oversees international treaties pertaining to fish and wildlife matters.

Associate Director for Fish and Wildlife Management
202/343-5333

Develops, manages and protects interstate and international fisheries, including anadromous species, fisheries of the Great Lakes, interstate river and reservoir systems, fisheries on federal lands and endangered species of fish.

Associate Director for Research and Environment,
Environment Office
202/343-5715

Surveys and investigates all federal and federally-licensed water projects to determine environmental impact on fish and wildlife. Provides technical assistance when water project is licensed or authorized; participates in water resource planning with other federal agencies.

Associate Director for Research and Environment,
Research Office
202/343-2279

Performs research on fish diseases, nutrition, and culture techniques; studies ecology requirements of fish in

(Interior Dept., Cont'd.)

(Fish and Wildlife Service, Cont'd.)

(Associate Director for Research and Environment, Cont'd.)

reservoirs (man-made) and changes in fish population and lake ecology of the Great Lakes; studies the effects of pesticides and herbicides on fish; administers cooperative research units at universities which conduct fishery research and train graduate students.

Associate Director for Research and Environment,
Biological Services Office
202/343-8095

Provides an information base and analytic capability to assure appropriate input on fish environmental decisions. Provides information on the impact of energy resource development (including Outer Continental Shelf development, geothermal leasing, oil shale and coal) on fish.

Geological Survey
12201 Sunrise Valley Dr.
Reston, Virginia 22092
703/860-7571

Conservation Division, Mining Operations Branch
703/860-7506

Answers inquiries and makes referrals to state, local or other offices which offer consultation and assistance.

Conservation Division, Resource Evaluation Program
703/860-7571

Evaluates and classifies coal and other resources on federal lands.

Geologic Division, Office of Energy Resources and
Marine Geology
703/860-6461

Handles resource assessment and exploration research activities for coal and other resources.

(Geological Survey, Cont'd.)

Land Information and Analysis Office
703/860-7488

Studies and analyzes land resources and the environment as they relate to land-use decisions. Develops and applies natural science and geographic technology in support of planning and decision-making, mapping current land use, collecting, processing and distributing remote sensing data, and applying other aspects of space technology in support of land-resources and environmental analysis.

Office of Land Use and Water Planning
1725 K St., N.W.
Washington, D.C. 20240
202/343-8058
Information: 202/343-7453

Coordinates Interior Dept. land use and water planning policies for federal and non-federal agencies; provides technical assistance to state and municipal land and water planning agencies; serves as liaison with national organizations interested in land use planning.

Resources and Land Investigations (RALI)
202/860-6717

Office focuses on integrated planning for mining operations, pollution control, subsequent land reclamation and re-use, among its other information disseminating responsibilities.

Tennessee Valley Authority
Division of Forestry, Fisheries and Wildlife Development
Norris, Tennessee 37828
615/522-7181 ext. 2296

Answers inquiries on strip-mine reclamation. Offers inter-library loan service and onsite reference use of its library collection.

Forest and Habitat Revegetation Section
615/637-3361

Performs and supports research. Provides advisory and consulting services as time permits.

Governmental -
Regional

Congress

Regional Commissions

Appalachian Regional Commission
1666 Connecticut Ave., N.W.
Washington, D.C. 20235
202/967-5728
Information: 202/967-4828

Federal-state partnership for economic development of region including Alabama, Georgia, Kentucky, Maryland, Mississippi, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia. Plans and provides technical and financial assistance for economic development of Appalachia; coordinates federal and state efforts in Appalachia. Office of Energy, Environment and Natural Resources supervises research and technical assistance in Appalachian mining and mine-reclamation among other subjects.

Old West Regional Commission
1730 K St., N.W.
Washington, D.C. 20006
202/967-3491

Federal-state action planning commission for Montana, Nebraska, North Dakota, South Dakota and Wyoming. They have published advisory materials for states and local jurisdictions on mining impacts, reclamation and utilization of mined lands.

Congress

House Agriculture Committee
Subcommittee on Conservation and Credit
1301 L HOB*
Washington, D.C. 20515
202/225-2171

Jurisdiction over irrigation and soil conservation legislation.

House Interior and Insular Affairs Committee
Subcommittee on Energy and the Environment
1626 L HOB
Washington, D.C. 20515
202/225-8331

Jurisdiction over legislation on land use planning, including strip mining.

L HOB -- Longworth House Office Building
R HOB -- Rayburn House Office Building
D SOB -- Dirksen Senate Office Building
R SOB -- Russell Senate Office Building

(Congress, Cont'd.)

House Interior and Insular Affairs Committee
Subcommittee on Mines and Mining
421 House Office Building Annex #1
Washington, D.C. 20515
202/225-1661

Jurisdiction over legislation on geology and strip mining on public lands (jurisdiction on strip mining shared with House Interior and Insular Affairs Subcommittee on Energy and the Environment).

House Interior and Insular Affairs Committee
Subcommittee on Public Lands
1522 House Office Building
Washington, D.C. 20515
202/225-3681

Jurisdiction over legislation on public lands.

House Merchant Marine and Fisheries Committee
Subcommittee on Fisheries and Wildlife,
Conservation and the Environment
1339 L HOB
Washington, D.C. 20515
202/225-7307

Jurisdiction over legislation on fish.

House Science and Technology Committee
Subcommittee on Energy Research, Development and
Demonstration (Fossil Fuels)
B 374 R HOB
Washington, D.C. 20515
202/225-9117

Jurisdiction over legislation on research and development of fossil fuel energy (coal, petroleum, natural gas, oil shale, tar sand, synthetic fuels such as liquified and gasified coal.)

Senate Agriculture and Forestry Committee
Subcommittee on Environment, Soil Conservation
and Forestry
322 R SOB
Washington, D.C. 20510
202/224-2035

Jurisdiction over soil conservation legislation.

(Congress, Cont'd.)

Senate Commerce Committee
Subcommittee on Oceans and Atmosphere
435 R SOB
Washington, D.C. 20510
202/224-9345

Jurisdiction over legislation on fish.

Senate Interior and Insular Affairs Committee
Subcommittee on Minerals, Materials and Fuels
3206 D SOB
Washington, D.C. 20510
202/224-9894

Jurisdiction over legislation on public lands
and land use planning.

Senate Interior and Insular Affairs Committee
Subcommittee on Energy Research and Water Resources
3296 D SOB
Washington, D.C. 20510
202/224-1076

Jurisdiction over irrigation legislation and
non-nuclear programs of ERDA.

State Agencies with Responsibility for Enforcement of Laws Respecting
Water Pollution and Land Reclamation Aspects of Acid Mine Drainage
Control.

Source: Congressional Research Service, Environment and Natural
Resources Policy Division, State Acid-Mine Drainage Laws:
a Comparison, December 7, 1976.

<u>State*</u>	<u>Responsible Agency</u>	
	<u>Water Pollution Control</u> (Acid Mine Drainage)	<u>Reclamation</u>
Alabama	Alabama Water Improvement Commission	Alabama Surface Mining Re- clamation Commission
Alaska	Department of Environmental Conservation	
Arizona	Department of Health Services, Water Quality Control Council	
Arkansas	Arkansas Department of Pollu- tion Control and Ecology	Arkansas Pollution Control Commission
California	State Water Resources Control Board	
Colorado	Colorado Department of Health Water Quality Control Commission	Land Reclamation Board
Florida		State of Florida, Department of Natural Resources Divi- sion of Resource Manage- ment, Bureau of Geology
Georgia	State Water Quality Con- trol Board	Department of Natural Re- sources, Division of Resource Management, Land Reclamation Section

* The States of Connecticut, Delaware, Hawaii. Louisiana, Massachusetts, Nebraska, New Hampshire, Rhode Island, South Carolina and Vermont are omitted. While they have laws governing surface mining, coal and metal minings are not active. Florida has neither coal nor metal but does have mineral extraction tax laws with provisions for water quality protection.

Governmental -
States

<u>State</u>	<u>Responsible Agency</u>	
	<u>Water Pollution Control</u> (Acid Mine Drainage)	<u>Reclamation</u>
Idaho	Idaho Board of Environment and Community Service	
Illinois	Environmental Protection Agency, Department of Mines and Pollution Control Board	Minerals, Division of Land Reclamation
Indiana	The Stream Pollution Control Board	Department of Natural Resources, Division of Reclamation
Iowa	Department of Environmental Quality, Water Quality Commission	Division of Mines and Minerals, Department of Soil Conservation; and State Mining Board
Kansas	Department of Health and Environment, Division of Environment, Water Quality Control Program	Mined Land Conservation and Reclamation Board; State Corporation Commission
Kentucky	Department of Environmental Protection	Department for Natural Re- sources and Environmental Protection, Division of Reclamation
Maine	Board of Environmental Protection	
Maryland	Department of Natural Re- sources, Water Resources Administration	Maryland State Department of Natural Resources, Bureau of Mines
Michigan	Department of Natural Re- sources, Water Resources Commission	
Minnesota	Minnesota Pollution Control Agency	
Missouri	Missouri Clean Water Commission	Land Reclamation Commission

Governmental -
States

<u>State</u>	<u>Responsible Agency</u>	
	<u>Water Pollution Control</u> (Acid Mine Drainage)	<u>Reclamation</u>
Mississippi	Mississippi Air and Water Pollution Control Commission	
Montana	Water Quality Bureau, Depart- ment of Health and Environ- mental Sciences	Board of Land Commissioners, Department of State Lands
Nevada	Bureau of Environmental Health	
New Jersey	New Jersey Department of Environmental Protection	
New Mexico	Water Quality Control Commission	Coal Surface Mining Commission
New York	Department of Environmental Conservation	New York State Department of Environmental Conser- vation, Bureau of Minerals
North Carolina	Department of Natural and Economic Resources	
North Dakota	North Dakota State Water Pollution Control Board, Department of Health	North Dakota Public Service Commission, Division of Reclamation
Ohio	Ohio Environmental Protec- tion Agency	Division of Reclamation, Department of Natural Resources
Oklahoma	Oklahoma Water Resources Board	Department of Mines
Oregon	Department of Environmental Quality	Department of Geology and Mineral Industries, Mined Land Reclamation Office
Pennsyl- vania	Bureau of Water Quality Management, Department of Environmental Resources	Department of Environmental Resources, Bureau of Sur- face Mine Reclamation

Governmental -
States

<u>State</u>	<u>Responsible Agency</u>	
	<u>Water Pollution Control</u> (Acid Mine Drainage)	<u>Reclamation</u>
South Dakota	Department of Environmental Protection	
Tennessee	Tennessee Water Quality Control Board	Department of Conservation, Division of Surface Mining
Texas	Texas Water Quality Board	Railroad Commission of Texas
Utah	Utah Water Pollution Committee	Department of Natural Resources, Division of Oil, Gas and Mining; and the Oil, Gas Mining Board
Virginia	State Water Control Board	Department of Conservation; and Economic Development Division of Mined Land
Washington	Department of Ecology	Division of Geology and Earth Resources, Department of Natural Resources
West Virginia	Department of Natural Resources, Division of Water Resources	West Virginia Department of Natural Resources
Wisconsin	Division of environmental Protection	
Wyoming	Department of Environmental Quality	The Land Quality Division, Department of Environmental Quality

B. Governmental - States

**A DIRECTORY TO STATE SOURCES OF INFORMATION ON SURFACE
MINED-AREA RECLAMATION PROGRAMS, 1975**

State	Agency	Individual	Location
Alabama	Strip-mining Section Division of Safety and Inspection Department of Industrial Relations	H. T. Williams, Chief of Safety and Inspection	1816 8th Ave., North Birmingham, AL 35208 205-251-1181
Alaska	Division of Lands Department of Natural Resources	Michael Smith, Director, and Pedro Denton, Minerals Officer	323 E. Fourth Ave. Anchorage, AK 99501 907-279-5577
Arizona	Arizona State Land Department	Andrew L. Bettwy, Commissioner	1624 W. Adams St. Phoenix, AZ 85007 602-271-4621
Arkansas	Department of Pollution Control and Ecology	S. Ladd Davies, Director Milton Bonner, Geologist	8001 National Drive Little Rock, AR 72209 501-371-1701
California	Bureau of Mines and Geology Department of Conservation	Robert Strelitz, Advanced Planning Officer	1416 Ninth St. Room 1341 Sacramento, CA 95841 916-445-0514
Colorado	Reclamation Section Department of Natural Resources	Director	c/o Division of Mines 1845 Sherman St. Denver, CO 80203 303-892-3401
Connecticut	The Natural Resources Center Department of Environmental Protection	Hugo Thomas, Director	165 Capitol Ave. Room 561 Hartford, CN 06115 203-566-3540
Delaware	Division of Environmental Control Department of Natural Resources and Environmental Control	N. C. Vasuki, Director	Dover, DL 19901 302-678-4764
Florida	Bureau of Geology Division of Resource Management Department of Natural Resources	Charles Hendry, Chief Steve Windham, Deputy Chief	903 W. Tennessee St. Tallahassee, FL 32304 904-488-4191 or 3636
Georgia	Land Reclamation Section Division of Environmental Protection Department of Natural Resources	Sanford Darby, Chief	P.O. Box 4845 Macon, GA 31208 912-744-3346
Hawaii	Department of Land and Natural Resources	Christopher Cobb, Chairman and Member, Board of Land and Natural Resources	P.O. Box 621 Honolulu, HI 96809 808-545-6550
Idaho	Division of Earth Resources Department of Lands	Terry Maley, Director, Norman Day, Supervisor, Conser- vation Section	Statehouse, Room 120 Boise, ID 83720 208-354-8280

Source: U.S. Department of Interior, Geological Survey, Resource and Land
Investigations (RALI) Program, Geological Survey Circular 731,
A Guide to State Programs for the Reclamation of Surface Mined Areas
pp. 30-33.

**A DIRECTORY TO STATE SOURCES OF INFORMATION ON SURFACE
MINED-AREA RECLAMATION PROGRAMS, 1975—Continued**

<i>State</i>	<i>Agency</i>	<i>Individual</i>	<i>Location</i>
Illinois	Division of Land Reclamation Department of Mines and Minerals	Eugene Filer, Supervisor, and Charles Medvick, Resource Planner	State Office Bldg. Room 704 Springfield, IL 62706 217-782-4970 618-993-5450
Indiana	Division of Reclamation Department of Natural Resources	Richard McNabb, Director	613 State Office Bldg. 100 N. Senate Ave. Indianapolis, IN 46204 317-633-6217
Iowa	Division of Mines and Minerals Department of Soil Conservation	Marvin B. Ross, Mine Inspector	Grimes State Office Building Des Moines, IA 50319 515-281-5774
Kansas	Mined-Land Conservation and Reclamation Board State Corporation Commission	G. T. Van Bebber, Chairman, and Charles F. Bredahl, Member	Fourth Floor State Office Bldg. Topeka, KS 66612 913-296-3325 or 3600
Kentucky	Division of Reclamation Department for Natural Resources and Environmental Protection	Kenneth Ratliff, Director	5th Floor, Capitol Plaza Tower Frankfort, KY 40601 502-564-6940
Louisiana	Department of Conservation	Ray Sutton, Commissioner	P.O. Box 44275 Capitol Station Baton Rouge, LA 70804 504-389-5161
Maine	Bureau of Land Quality Control Department of Environmental Protection	Henry Warren, Director	State House Augusta, ME 04330 207-289-2111
Maryland	State Bureau of Mines Maryland Energy and Coastal Zone Administration	Harry Buckley, Director	City Building Westernport, MD 21562 301-359-3057
Massachusetts	Department of Public Works	Joseph Sinnott, State Geologist	100 Nashua Street Room 805 Boston, MA 02114 617-727-6398
Michigan	Geological Survey Division Department of Natural Resources	R. Thomas Segall, Geologist in Charge	Stevens T. Mason Bldg. Lansing, MI 48926 517-373-1256
Minnesota	Division of Minerals Department of Natural Resources	Elwood Rafn, Director Paul Pojar (Staff)	Centennial Office Bldg. St. Paul, MN 55155 612-296-4810
Mississippi	Mississippi Geological, Economic and Topographical Survey	William H. Moore, Director	P.O. Box 4915 Jackson, MS 39216 601-354-7011
Missouri	Office of Land Reclamation Department of Natural Resources	Robert Neuensch- wander, Director	P.O. Box 1368 Jefferson City, MO 65101 314-751-2357

**A DIRECTORY TO STATE SOURCES OF INFORMATION ON SURFACE
MINED-AREA RECLAMATION PROGRAMS, 1975—Continued**

<i>State</i>	<i>Agency</i>	<i>Individual</i>	<i>Location</i>
Montana	Division of Reclamation Department of State Lands	C. C. McCall, Administrator	Capitol Station Helena, MT 59601 406-587-2074
Nebraska	Office of State Planning and Programming	W. Don Nelson, Director	P.O. Box 94601 Lincoln, NE 68506 402-471-2414
Nevada	Nevada Bureau of Mines and Geology	William Dubois, Inspector of Mines	University of Nevada Reno, NV 89507 702-885-5243
New Hampshire	Department of Forests and Lands	Sargent Goodhue, Chief of Forest Management, and Glenn Stewart, State Geologist	Statehouse Annex P.O. Box 856 Concord, NH 03301 603-271-8456 James Hall University of New Hampshire Durham, NH 03824 603-862-1216
New Jersey	Bureau of Geology and Topography Division of Natural Resources	Dr. Kemble Widmer, State Geologist	John Fitch Plaza P.O. Box 1889, Room 706 Trenton, NJ 08625 609-292-2576
New Mexico	Bureau of Mines and Mineral Resources	Frank E. Kottlowaki, Director	Campus Station Socorro, NM 87801 505-835-5420
New York	Bureau of Minerals Department of Environmental Conservation	Richard Arieda, Assistant Director	50 Wolf Road Albany, NY 12283 518-457-7480
North Carolina	Land Quality Section Division of Environ- mental Management Department of Natural and Economic Resources	Craig McKenzie, Chief	P.O. Box 27687 Raleigh, NC 27611 919-829-4740
North Dakota	Division of Reclamation Public Service Commission	Ed Englerth, Chief, and Allen D. Klein	Capitol Bldg. Bismark, ND 58501 701-224-2410
Ohio	Division of Reclamation Department of Natural Resources	Ken Faulk, Chief (Acting)	Fountain Square Columbus, OH 43224 614-466-4830
Oklahoma	Department of Mines	Ward Padgett, Chief Mines Inspector	253 Capitol Bldg. Oklahoma City, OK 73105 405-521-3859
Oregon	Mined Land Reclama- tion Office Department of Geology and Mineral Industries	Standley Ausmus, Administrator, and Tom Ehmett	P.O. Box 1028 Albany, OR 97321 503-928-5386
Pennsylvania	Bureau of Surface Mine Reclamation Department of Environmental Resources	William Guckert, Director Ralph V. Zampogna, Geologist	P.O. Box 2063 Harrisburg, PA 17120 717-787-5103

**A DIRECTORY TO STATE SOURCES OF INFORMATION ON SURFACE
MINED-AREA RECLAMATION PROGRAMS, 1975-Continued**

<i>State</i>	<i>Agency</i>	<i>Individual</i>	<i>Location</i>
Rhode Island	Statewide Planning Program	Daniel W. Varin, Director	265 Melrose St. Providence, RI 02907 401-277-2656
South Carolina	Department of Mining and Reclamation Land Resources Conservation Commission	Murray Wood, Director, and Jack S. Whisnant, Geologist	P.O. Box 11708 Columbia, SC 29211 803-758-2823
South Dakota	Division of Conservation Department of Agriculture	Al Griffiths, Director	Joe Foss Bldg. Room 110 Pierre, SD 57501 605-224-3258
Tennessee	Division of Surface Mining and Land Reclamation Department of Conservation	Chase Delony, Director, and George Laughlin	2611 W. End Ave. Nashville, TN 37203 615-741-1046
Texas	Division of Surface Mining and Reclamation Railroad Commission of Texas	Roy D. Payne, Director, and J. Randel Hill	Capitol Station P.O. Drawer 12967 Austin, TX 78711 512-475-4639 or 6520
Utah	Division of Oil and Gas Conservation Department of Natural Resources	Cleon B. Feight, Director, and Ron Daniels, Mined Land Coordinator	1588 W. N. Temple Salt Lake City, UT 84116 801-533-5771
Vermont	Agency of Environmental Conservation	Martin L. Johnson, The Secretary, and Edward Koenemann, Director, Division of Planning	State Office Bldg. Montpelier, VT 05602 802-826-3357
Virginia	Division of Mined Land Reclamation Department of Conservation and Economic Development	Grant Hollett, Reclamation Specialist, and William D. Roller, Director	Drawer U Big Stone Gap, VA 24219 703-528-2925
Washington	Division of Geology and Earth Resources Department of Natural Resources	Donald Ford, Geologist	Public Lands Bldg. Olympia, WA 98504 206-753-6183
West Virginia	Division of Reclamation Department of Natural Resources	Benjamin G. Greene, Chief	State Office Bldg. No. 8 Room 322 Charleston, WV 25305 804-345-3267
Wisconsin	Bureau of Water Regulation and Zoning Department of Natural Resources	Floyd Stautz, Director	Box 450 Madison, WI 53701 608-266-8084
Wyoming	Division of Land Quality Department of Environmental Quality	Walt Ackerman, Administrator	State Office Bldg. W Cheyenne, WY 82002 307-777-7756

C. Non-Governmental Organizations

American Enterprise Institute for Public Policy Research
1150 17th St., N.W.
Washington, D.C. 20036
202/296-5616

Nonprofit research and educational organization funded by individuals, foundations and companies. Researches effects of spending and tax reform proposals on economic activity, saving, investment and individual behavior, and on federal budget trends.

American Fisheries Society
5410 Grosvenor Lane
Bethesda, Md. 20014
301/897-8616

Membership: biologists and other scientists interested in fisheries; promotes conservation, development and proper utilization of recreational and commercial fisheries.

American Institute of Mining, Metallurgical and
Petroleum Engineers, Inc.
United Engineering Center
345 E. 47th St.
New York, New York 10017
212/752-6800

Organizational concerns encompass mining, metallurgy, petroleum engineering, coal and industrial minerals, extraction, beneficiation and related economics and education. They publish several journals related to mining.

American Mining Congress
1200 18th St., N.W.
Washington, D.C. 20036
202/331-8900

Membership: domestic producers of coal, industrial-agricultural minerals and metals, manufacturers of mining equipment, banks and other financial institutions with interests in mining. Interests include mine-leasing programs, mining health and safety, pipelines, research and development, including synthetic fuels. The organization answers inquiries and makes referrals, publishes material on mining land reclamation and energy, and permits onsite use of its reference collection.

Non-Governmental
Organizations

Center for Natural Areas
1525 New Hampshire Ave., N.W.
Washington, D.C. 20036
202/265-0066

Research organization funded by private contributions and government contracts. Completed a land use study for the Interior Dept. which will be used as a guide for states.

Colorado School of Mines Research Institute
P.O. Box 112
Golden, Colorado 80401
303/279-2581

The Institute performs research in the areas of mining, metallurgy, and land reclamation on a fee or contract basis. It also operates a prospector service for the State of Colorado. Its publications include the Colorado School of Mines Mineral Industries Bulletin, an abstract journal (bimonthly).

Division of Mines and Minerals
Iowa Department of Soil Conservation
Grimes Building
Des Moines, Iowa 50519
515/281-5774

The Division answers questions on underground and surface mining, depleted underground coal areas, and the rehabilitation of mined lands. Minerals of interest include gypsum and coal.

Electric Power Research Institute
1750 New York Ave., N.W.
Washington, D.C. 20006
202/872-9222

Nonprofit research organization supported by private and public electric utilities. Conducts research on all aspects of energy of interest to electric utilities, including fossil fuels (coal, natural gas, petroleum), nuclear, solar, geothermal and other advanced systems. (Headquarters in Palo Alto, California.)

Engineering Societies Library
345 E. 47th St.
New York, New York 10017
212/752-6800

Non-Governmental
Organizations

(Engineering Societies Library)

Collection covers engineering and related physical sciences. Library provides reference services, literature searching and duplication services for a fee, and lends films.

Environmental Defense Fund

1525 18th St., N.W.
Washington, D.C. 20036
202/833-1484

Citizens' interest group staffed by lawyers and scientists. Takes legal action on environmental issues. Provides information on land use planning.

Environmental Policy Center

324 C St., S.E.
Washington, D.C. 20003
202/547-6500

This group has sponsored comparative analysis of several states' strip-mining laws as part of its environmental policy research work.

International Union for Conservation of Nature and
Natural Resources

National Zoological Park
Washington, D.C. 20009
202/381-7225

International federation of governments and national and international conservation organizations. Advises governments on conservation problems; researches conservation problems through field studies and publishes results. Maintains close working relations with United Nations system. (Headquarters in Switzerland.)

Izaak Walton League of America

1800 N. Kent Street
Arlington, Virginia 22209
703/528-1818

Citizens' interest group. Promotes conservation of natural resources and the environment; has information on strip mining impacts on fishing.

Non-Governmental
Organizations

Mackay School of Mines
University of Nevada
Reno, Nevada 89507
702/784-6987

The School conducts field studies and pursues research in mineral beneficiation, extractive metallurgy, mined land reclamation, and the economic problems associated with the mineral industry in Nevada. The School's staff provides reference and consulting services; identifies, analyzes, and evaluates minerals, rocks, and ores; and permits onsite use of its collection.

National Association of Conservation Districts
1025 Vermont Ave., N.W.
Washington, D.C. 20005
202/347-5995

Membership: conservation districts (local subdivisions of state governments). Develops national policies on the conservation and development of wildlife, water, land, forests and related resources. Interests include sediment control, control of pollution from unidentified sources, and rural development. They answer inquiries and make referrals to cooperating organizations.

National Audubon Society
1511 K St., N.W.
Washington, D.C. 20005
202/833-3892

Citizens' interest group. Promotes preservation of natural resources; provides information on such subjects as wildlife, water, Outer Continental Shelf, land, range lands, forests, parks and recreation. (Headquarters in New York.)

National Coal Association
1130 17th St., N.W.
Washington, D.C. 20036
202/628-4322

Membership: industries involved in production, distribution and use of coal. Collects, analyzes and distributes industry statistics; makes special studies of competitive fuels, coal markets, production and consumption forecasts, and industry planning. Interests include exports, mine leasing programs, mining health and safety, pipelines, research and development, including synthetic fuels. Their Mined-Land Conservation

Non-Governmental
Organizations

(National Coal Association)

Conference answers inquiries and provides materials on reclamation of mined land. It publishes Mined-Land Conservation bimonthly, permits onsite use of the reference collection and photo file.

National Crushed Stone Association

1415 Elliot Place, N.W.
Washington, D.C. 20007
202/333-1536

The Association collects and disseminates information on the quarrying and uses of crushed stone and on the reclamation and beautification of spent quarries. Services are primarily for members, and are provided to others as time permits.

National Industrial Pollution Control Council

U.S. Dept. of Commerce
Washington, D.C. 20330
202/967-4513

A large groups of chief executives from industry, created to advise the Administration in environmental quality, improvement policies and to provide leadership for voluntary clean-up of pollution by industry. Answers questions and offers consulting services.

National Sand and Gravel Association

900 Spring Street
Silver Spring, Maryland 20910
301/587-1400

The Association is primarily concerned with questions relating to the production of aggregates, such as sand and gravel, and including concrete and bituminous mixtures. It is also interested in the recovery of mined areas. Inquiries are answered or referred to cooperating members for more extensive reply, and limited consulting services are provided.

National Wildlife Federation

1412 16th St., N.W.
Washington, D.C. 20036
202/797-6800

Nonprofit, publicly supported conservation education organization. Promotes preservation of natural resources; provides

Non-Governmental
Organizations

(National Wildlife Federation)

information on such subjects as wildlife, fish, water,
Outer Continental Shelf, ocean, land, range lands,
forests, parks and recreation, and toxic materials.

National Resources Defense Council

917 15th St., N.W.

Washington, D.C. 20005

202/737-5000

Nonprofit environmental organization staffed by lawyers
and scientists who undertake litigation and research.
Provides information on such subjects as air, water,
Outer Continental Shelf, oceans, land use, forests,
nuclear power, toxic materials, natural resource manage-
ment and conservation and ozone pollution.

Pennsylvania State University

Coal Research Section

University Park, Pennsylvania 16802

814/865-6548

The Section conducts research on mining engineering and
practices and on the reuse of mined lands. It answers
brief inquiries and provides research and consulting
services on a fee or contract basis.

Pennsylvania State University

Earth and Mineral Science Experiment Station

Mineral Science Building, Room 118

University Park, Pennsylvania 16802

814/865-7659

The Station conducts major research programs in the earth
sciences and in mineral and mining engineering, the material
sciences, mine drainage water purification, and mine refuse
bank reclamation. Analytical and consulting services are
provided to all users at cost.

Pennsylvania State University

School of Forest Resources

814/865-8384

Research on the reclamation and reforestation of strip-mined
lands is conducted by the School. The results of this research

Non-Governmental
Organizations

(Penn. State U., School of Forest Resources)

are published in professional journals. Research is conducted and consulting services are provided on a fee or contract basis. Requests for information should be addressed to Professor William E. Sopper.

Resources for the Future

1775 Massachusetts Ave., N.W.
Washington, D.C. 20036
202/462-4400

Nonprofit organization funded by foundations. Conducts research on conservation and development of natural resources, including water, Outer Continental Shelf, oceans, minerals, land and forests.

Sierra Club

324 C St., S.E.
Washington, D.C. 20003
202/547-1144

Citizens' interest group. Promotes preservation of natural resources; provides information on such subjects as wildlife, fish, water, Outer Continental Shelf, ocean, minerals, land, range lands, forests, parks and recreation, and toxic materials. Washington office follows national and regional legislation. (Headquarters in San Francisco, Calif.)

University of Alabama

Alabama State Mine Experiment Station
P.O. Box 1466
University, Alabama 35486
205/348-6550

Research activities cover mining methods, coal technology, mine preparation, water pollution from minerals and fuels; drilling, rock mechanics. Provides answers to inquiries and consulting services.

University of Alabama

Engineering Library
P.O. Box 6267
University, Alabama 35486
205/348-6551

Maintains collection of materials on land reclamation.

Non-Governmental
Organizations

University of Kentucky
Kentucky Research Foundation
Lexington, Kentucky 40506
606/258-4666

The Foundation acts as an information center for and coordinator of research projects performed by University faculty members. Its areas of interest include mining and metallurgical engineering and the recovery of mined lands.

University of Minnesota
Mineral Resources Research Center
Minneapolis, Minnesota 55455
612/373-3341

The Center is interested in problems relating to the mining and concentration of ores; the exploitation of deposits in clay, marl, pyrite, and limestone; and the reclamation of mined lands. It publishes Progress Reports and a Mining Directory (annual). Inquiries are answered, and research is conducted on a contract basis. The Center also identifies rocks and minerals and analyzes samples.

West Virginia Surface Mining and Reclamation Association
1033 Quarrier Street
Charleston, West Virginia 25301
304/346-5318

The Association is concerned with mining practices and the reclamation of mined lands in West Virginia. Information and appropriate materials will be provided on request.

Wilderness Society
1901 Pennsylvania Ave., N.W.
Washington, D.C. 20006
202/293-2732

Citizens' interest group. Promotes preservation of the wilderness; provides information on wildlife, water, land, range lands, forests, parks and recreation.

World Wildlife Fund
1319 18th St., N.W.
Washington, D.C. 20036
202/466-2160

Individuals

(World Wildlife Fund)

Private, international conservation organization. Supports scientific research and conservation projects to save endangered species, habitats, and plants. Makes grants for land acquisition, habitat protection and maintenance (primarily of parks).

D. Individuals

The Library of Congress Referral Service, Smithsonian Science Information Exchange and many of the agencies and organizations listed in the foregoing pages can make referral to knowledgeable individuals.

Further, authors of works cited in the literature references that follow, may be located for information or consultation.

ENVIRONMENTAL INFORMATION
RESOURCES FOR
STATE AND LOCAL ELECTED OFFICIALS

surface mining

IMPACTS

surface mining

IMPACTS

Air and Land

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Coal strip-mined land in Indiana, Indiana Department of Natural Resources, 1972. 18 pp.

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CALL FOR PAPERS

National Coal Association and its affiliate, Bituminous Coal Research, Inc., are organizing the 1977 Coal Conference and Expo IV. Persons interested in presenting a paper during one of the five conference technical symposiums should submit a short (one page) description of the proposed paper for consideration by the Program Committee. These abstracts, in English, must be submitted by March 31, 1977 to:

*James F. Boyer, Jr., Program Chairman, Bituminous Coal Research, Inc.
350 Hochberg Road, Monroeville, Pennsylvania 15146*

The focus of the Coal Conference is being expanded this year to include reports by international experts on the technology being developed in their countries. The international importance of the conference is being further emphasized as the International Committee for Coal Research will be holding their annual planning meeting in conjunction with Coal Conference and Expo IV.

In view of the international aspect of this conference, simultaneous translation is being planned of a limited number of sessions into German, French, and Japanese. All speakers, however, are encouraged to deliver their presentations in English.

The Committee is interested in developing a program of both technical interest and practical value. Therefore, the invitation to submit abstracts is extended to those involved in management and research, as well as those who have effectively applied the technology and consider that publication of their experience will make a significant contribution to our data base concerning coal production, utilization, improved safety, and environmental control. Following are the various symposiums to be presented and a partial list of subject areas to be discussed. Other topics which fit into the general symposia headings will also be considered.

Third Preparation Symposium: Chemical Coal Cleaning; Noise Control; Fine Coal Cleaning; Refuse and Waste Disposal and Utilization; Maintenance.

Third Symposium on Underground Mining: Maintenance; Longwall Mining; Dust-Ventilation; Productivity; Machine Design; Instrumentation; Haulage and Transportation; Communications; Subsidence; Illumination.

Fourth Coal Utilization Symposium: Sulfur Emission Control; Fuel Substitution; Trace Elements; Particulate Control; Scrubber Sludge and Ash Disposal.

Fifth Symposium on Surface Mining and Reclamation: Maintenance; Pre-Planning; Equipment Development; Sedimentation and Erosion Control; Grading and High-wall Modification; Soil Amendments; Plant Materials and Planting; Utilization of Mined Land.

Sixth Symposium on Mine Drainage Control: Neutralization and Other Treatment Processes; At-Source Abatement; Mine Drainage Formation; Drainage from Coal Storage Piles; Refuse Pile Drainage.

Fifteen to twenty-five papers will be selected for presentation at each symposium. All papers will be preprinted and bound into separate symposium proceedings which will be available prior to the meeting. To meet this timetable, the manuscripts of the papers, in English, must be submitted by August 5, 1977. Please be prepared to meet this deadline if you submit an abstract for consideration.

The Program Committee will finalize the program in April, and you will be notified of its decision concerning inclusion of your paper on the program.

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Starting from the premise that energy self-sufficiency is the nation's priority, this study analyzes five steps in the flow from 1) development of fuel resources and facilities through 2) operation processing and conversion to energy, 3) distribution to, and 4) use by, energy consumers and 5) shut-down or disposals of residuals. Federal, state and local regulations which the Appalachian mining-energy-consumer system encounters at the various stages are identified. Thus the role of surface mining regulation and operations themselves can be viewed in a fairly broad perspective. An appendix on coal production and mining reclamation technologies is helpfully illustrated.

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Publications Distribution Branch
Bureau of Mines
4800 Forbes Avenue
Pittsburgh, Pa. 15213

Statistics cover reserves, production value, consumption, stocks, exports and imports, price indicators for average net ton, breakdown by method of mining, mechanical cleaning volume, number of operating mines, employment and worker-productivity (almost all data by state, and some state data by county.)

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PUBLIC POLICY, LEGISLATION
REGULATION, STATE & LOCAL

Articles and Reports

Articles

"Appalachia: the view from the hills and the view from Washington," Progressive, February 1975, v. 39, n. 2, p. 26.

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"Coal taxation in the Western states: the need for a regional tax policy," Natural Resources Journal, v. 16, April 1976, pp. 415-442.

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Design of surface mining systems in Eastern Kentucky, V. 1, Summary. Appalachian Regional Commission and Department for Natural Resources and Environmental Protection, Commonwealth of Kentucky. 1974 (Authors: Mathematica, Inc. and Ford, Bacon and Davis). NTIS (PB-242 651). Study examines strip mining impacts on the environment and the state's regulatory experience over the six-year period, 1966-1972. Problems are identified and improvements are recommended for both mining technique and administrative practice in the regulatory agency.

Environmental protection through public and private development controls. EPA, Office of Research and Monitoring. 1973. 117 p. Bibliography. (Author: Ann L. Strong et al). Depository. GPO (EP 1.23/3:73-018).

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PUBLIC POLICY, LEGISLATION
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Articles and Reports

A guide to state programs for the reclamation of surface mined areas. Department of Interior, Resource and Land Investigations (RALI). Geological Survey Circular 731. 1976. 33 p. (Authors: Edgar A. Imhoff, Thomas O. Friz, and James R. LaFevers). Free, on order from distribution Branch, USGS, 1200 S. Eads Street, Arlington, Virginia 22202. Circular includes glossary, general description of surface mining techniques, photographs, bibliography, directory of state sources of information about surface mined area reclamation programs, and matrix displaying provisions of all the states' surface mining rules and regulations for 24 different features. Text explains the common threads of the state legislation, differences and trends. Integrated planning for mining operations and re-use of the reclaimed land is emphasized.

Guidelines for erosion and sediment control, planning and implementation. EPA, Office of Research and Monitoring. 1972. 229 p. Bibliography. Depository. GPO (EP 1.23/2:72-015).

Guidelines manual for surface coal mine operators. State of Maryland Department of Natural Resources, 1975 revision. An example of one state's effort to inform mine operators of the pre-planning they must be prepared to demonstrate in their license and permit applications. Guidelines to aid the applicants in planning their mining and reclamation operations in conformity with applicable laws and regulations are also included.

Legal problems of coal mine reclamation: a study in Maryland, Ohio, Pennsylvania, and West Virginia. EPA Office of Research and Monitoring, 1972. 236 p. (Authors: University of Maryland School of Law.) Depository. GPO (EP 1/16:14010 FZU 03/72). Reviews history of mining-related pollution problems; role of the property system as allocator of rights in coal and coal lands; efficacy of existing litigation, laws and regulation to prevent environmental damage and constraints on the states to becoming more effective. Model state legislation is proposed.

Mineral resources, mining and land use planning in Wisconsin. Thomas O. Friz, 1975, 61 p. Wisconsin Geological and Natural History Survey Information Circular 26. Order from Wisconsin Geological Survey, 815 University Avenue, Madison, Wisconsin, 53706. \$3.00. Information report compiles for local and state officials, individual citizens, and industry, information on Wisconsin's mineral deposits, mining economics and production. Reflects perspective that mining is temporary use of the land, and should be part of a longer-view determination of how the land should be reclaimed and used ultimately.

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PUBLIC POLICY, LEGISLATION,
REGULATION STATE AND LOCAL

Reports

Model mineral reservation and mine zoning ordinance. John Preston, Eric Strauss, and Thomas O. Friz, 1974, 43 p. Wisconsin Geological and Natural History Survey Information Circular 24. See order address above. \$2.50. Pamphlet written for a general audience illustrates zoning to regulate mining activity and reserve known mineral resources.

State acid-mine drainage laws: a comparison. Congressional Research Service, Library of Congress, 76-2575, December 1976, 67 p. Briefly describes processes that create acid-mine drainage problem and compares for the 32 coal and metal mining states where the problems occur, provisions of state laws and regulations governing water pollution and mining reclamation. Relative stringency and inclusion of features for handling of acid-forming materials, as well as inspection and monitoring are indicated for each state on a chart. For each state the following information is outlined: names and dates of the respective laws and regulations, the agency(ies) responsible for administration and major provisions. No analysis of implementation efficacy is included.

State land use activity. Department of Housing and Urban Development Policy Development and Research and Office of Community Planning and Program Coordination, January 1976, 524 p. Bibliography. (Author: American Institute of Planners Research Office). Survey of state programs that affect land use (including surface mining regulation among others), mechanisms for coordination among them at the state level and mechanisms for state setting of priorities and goals for the future. Information is outlined for each state and summarized by region to facilitate comparison of approaches.

State strip mining laws: Alabama, Colorado, Kansas, Ohio, Texas and Virginia. John C. Doyle, Environmental Policy Center, March 1976. Report concludes, after systematic review of the language of the surface mining statutes of the six states, that the most frequent and serious weaknesses are in respect to: criteria and process for permit approval, reclamation liability of the mine operator over an extended time, provision for public participation, and stringency of the performance standards for reclamation.

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PUBLIC POLICY, REGULATION-
FEDERAL

Coal Policy

Coal Policy

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"Policy analysis for coal development at a wartime urgency level to meet the goals of Project Independence. Office of Coal Research, 1974, 72 p. NTIS.

"Strip mining: a policy evaluation," Ecology Law Quarterly, v. 5, n. 3, 1976, pp. 461-529.

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PUBLIC POLICY, REGULATION-
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Federal Leasing

Federal Leasing

"Comment on the coal lease forfeiture decision: the hypothetical case of United States v. Peabody Coal Co.," Natural Resources Journal, v. 15, April 1975, pp. 257-263.

Draft programmatic environmental states: proposed Federal coal leasing in the United States of America, Department of Interior, 1974, 2 v.

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Federal coal leasing amendments act of 1975: Hearings, 94th Congress, 1st session on S. 391, May 7-8, 1975, 680 p., GPO.

Federal coal leasing amendments act of 1975: Report together with minority and additional views to accompany S. 391, 1975, GPO.

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"Federal coal leasing policy," introductory statement of Jack O. Horton, Assistant Secretary, Land and Water Resources, Department of the Interior, before the Senate Subcommittee on Minerals, Materials, and Fuels, March 13, 1974. In remarks of Lee Metcalf, Congressional Record, Daily Ed., v. 120, April 9, 1974: S5482-S5490.

Federal coal leasing program: Hearings, 93rd Congress, 2d session, 1974, 3 v., GPO.

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Federal Leasing

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PUBLIC POLICY, REGULATION-
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Proposed Legislation

Proposed Strip Mining Legislation 1974

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PUBLIC POLICY, REGULATION-
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Proposed Legislation

Proposed Strip Mining Legislation 1975

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Surface mining veto justification briefing. Hearing before the Subcommittee on Energy and the Environment and the Subcommittee on Mines and Mining of the Committee on Interior and Insular Affairs, House of Representatives, 94th Congress, 1st session on the President's veto of H.R. 25. June 3, 1975, 1975, 342 p., GPO.

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Leadville Mine Drainage Tunnel Act of 1976. Hearing, 94th Congress, 2d session on S 3394, June 7, 1976, 24 p., GPO.

Surface Mining Control and Reclamation Act of 1976: Report of the Committee on Interior and Insular Affairs, House of Representatives, together with concurring, additional, separate and dissenting views and including the Congressional Budget Office cost estimate to accompany H.R. 13950, August 31, 1976, 152 p. Depository, GPO (94-2:Hrp. 1445.)

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PUBLIC POLICY, REGULATION-
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Regulation

Regulation

Coal mining health and safety inspection manual for surface coal mining and surface work areas of underground coal mines. Bureau of Mines, 1975, Depository, GPO.

"Conflicting governmental regulations and policies affecting coal development," Natural Resources Lawyer, v. 9, n. 3, 1976, pp. 503-509.

Development document for interim final effluent limitations guidelines and new source performance standards for the coal mining point source category. EPA, Office of Water and Hazardous Materials, 1975, 247 p.

Guidelines for estimating personnel requirements for state water quality control agencies. EPA, Office of State Program Review and Assistance, 1970, 50 p. Bibliography. (Author: W. R. Hager.) Depository, GPO (EP 1.8:P43).

Implications of the Water Pollution Control Act of 1972 for the mineral resource industry: a survey. 1975, 61 p., NTIS report.

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"NEPA requirements for coal development," Natural Resources Lawyer, v. 9, n. 3, 1976, pp 491-494.

"Personal liability for safety, health violations shaping up as major headache for coal managers," Coal Age, v. 81, June 1976, pp. 95-100.

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CURRENT DEVELOPMENTS

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CURRENT DEVELOPMENTS

Two bills have been introduced in the 95th Congress, 1st Session:
S. 7 and H.R. 2.

C.I.S. Abstracts, Environment Reporter and other current awareness journals cited in the general reference guide to Environmental Information Resources for State and Local Elected Officials, are recommended sources for keeping abreast of developments on these two bills in Congress.

Journals which frequently cover surface mining and reclamation developments might be consulted as well. These are:

Chemical Engineering
Coal Age
Coal Mining & Processing
Engineering and Mining Journal
Environment
Environment and Behavior
Environmental Action
Environmental Conservation
Environmental Science and Technology
Ground Water
Journal of Environmental Engineering Division, ASCE
Mining Congress Journal
National Journal
Natural History
Nature
Science Digest
Scientific American
Water Research
Water Spectrum

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FUTURE ISSUES, DIRECTIONS

surface mining

FUTURE ISSUES,
DIRECTIONS

New technological developments associated with surface mining pose prospects for new research into environmental impacts and measures for controlling or mitigating them. Conversion of coal to energy at the mine site, solvent coal refining and other coal-cleaning operations, and use of coal waste (gob or culm) as fuel or fill material are all subjects of current research. Interested officials should follow current awareness publications for developments as they emerge. The United States Energy Research and Development Administration is another source for information on these subjects.

Some citations of published material follow:

Coal processing: gasification, liquefaction, desulfurization: a bibliography, 1930-1974, Library of Congress Reference Center, 1974, 757 p.

Commercialization of synthetic fuels. Hearing, 94th Congress, 1st session, on the utilization of coal and associated coal technologies in the development of a synthetic fuels program. June 16, 1975, 82 p., GPO.

Environment effects, impacts and issues related to large scale coal refining complexes, no. 2. Hittman Associates, Columbia, Maryland, 1975, 178 p. NTIS.

Water and energy self-sufficiency; a staff analysis and selected materials on water use in energy production. Prepared at the request of Senator Henry M. Jackson, pursuant to S. Res. 45, the national fuels and energy policy study, 1974, 1151 p. GPO.

If new Federal strip mining legislation is passed with provisions that follow the lines of the draft bills, state legislators will be called on to turn their attention to developing legislation parallel with provisions of the Federal Act. One of the approaches

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FUTURE ISSUES,
DIRECTIONS

embodied in the Federal proposals is that of restricting surface mining (or prohibiting it entirely) in areas where reclamation is not feasible or where the value of existing land uses is deemed higher than the value of the land for coal mining. Examples of such places might be sites or buildings of great historic or cultural significance, or extraordinary aesthetic or environmental value. A program for determining areas of critical state concern will be an important element in creating the basis for such restriction of mining activity.

The Resource and Land Investigations (RALI) Program of the U.S. Geological Survey has prepared a primer for state governments concerned with identifying and managing land resources of critical concern to the state. Designation of these areas is already required in connection with coastal zone management programs, and the principles involved may be transferable to the context of surface mining regulation.

Primer, Critical Areas and Information/Data Handling, Resources and Land Investigations Program, Geological Survey. January 1976, Available from RALI Office, U.S. Department of the Interior.

The National Oceanic and Atmospheric Administration, Coastal Zone Management Office is another source of information on the problems of designating areas of critical state concern.

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APPENDIX A: MATERIALS IN
ACCOMPANYING PACKET

Materials packets are available for
review in the

EPA Headquarters Library
Room 2404, Waterside Mall
401 M Street, SW
Washington, D.C.

SURFACE MINING PACKET CONTENTS

Environmental Information Resources for State and Local Elected Officials

U.S. Environmental Protection Agency

Basic Estimated Capital Investment and Operating Costs for Coal Strip Mines, U.S. Department of the Interior, Bureau of Mines Information Circular 8661. Washington. 1974.

Coal and the Environment Abstract Series: Mine Drainage Bibliography, 1910-1976, Virginia Gleason and Henry H. Russell. 1976.

Coal Surface Mining Reclamation Costs: Appalachian and Midwestern Coal Supply Districts. U.S. Department of the Interior, Bureau of Mines Information Circular 8695. Washington. 1975.

Drainage Handbook for Surface Mining. West Virginia Department of Natural Resources, Division of Reclamation. Charleston. 1975.

Environmental Planning: Law of Land and Resources, Chapter 12. Surface Mining, Arnold W. Reitze Jr., Washington. 1974.

Environmental Protection in Surface Mining of Coal, Elmore C. Grim et al, U.S. Environmental Protection Agency. Cincinnati. 1974.

Glossary of Surface Mining and Reclamation Technology, Bituminous Coal Research, Inc. National Coal Association. 1974.

A Guide to State Programs for the Reclamation of Surface Mined Areas. U.S. Department of the Interior, Geological Survey Circular 731. Resource and Land Investigations (RALI) Program. 1976.

Processes, Procedures, and Methods to Control Pollution from Mining Activities, U.S. Environmental Protection Agency. Washington. 1973.

Reclamation of Coal-Mined Land, a Bibliography with Abstracts, National Coal Association. 1975.

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Data Handling, U.S. Department of the Interior, Office of Land Use and Water
Planning and U.S. Geological Survey Resource and Land Investigations Program.
Washington. 1976.

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An Analysis of Six Selected State Statutes and Promulgated Regulations, John
C. Doyle Jr. Environmental Policy Center. Washington. 1976.

"A Stock Answer to Reclamation of Surface-Mined Lands," Appalachia, Feb.-
Mar., 1977. Vol. 10, No. 4.

A Study of Coal Prices, Executive Office of the President, Council on Wage
and Price Stability. Staff Report. March 1976.

Surface Mine Water Quality Control in the Eastern Kentucky Coal Fields, L.
Robert Kimball. 1974. (Microfiche).

"Surface Mining Control and Reclamation" bills, H.R. 2 or S. 7, 1977.

Surface Mined Areas: Control and Reclamation of Environmental Damage: A
Bibliography. Compiled by Margaret Frawley. U.S. Department of the Interior.
Bibliography Series No. 27. 1971.

Transfer of Development Rights: A New Concept in Land Use Management. B. Budd
Chavooshian, Thomas Norman, Esq. and Dr. George H. Nieswand. New Brunswick, N.J.